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ABSTRACT

This document was designed to consider the respective roles of students, institutions, foundations, business and industry, the states, and the nation in support of graduate education to assure an adequate supply of trained manpower to meet foreseeable state and national needs. Following introductory material, emphasis is placed on the current problems and concerns related to public policy issues in graduate education and research, and the role of the states in an institutional-state-federal partnership. (MJM)

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THE STATES AND GRADUATE EDUCATION

Report of the Task Force on Graduate Education

Report No. 59
Education Commission of the States
Denver, Colorado
Wendell H. Pierce, Executive Director

February 1975

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PREFACE

This Task Force on Graduate Education was authorized by the Steering Committee of the Education Commission of the States (ECS) at its meeting in Chicago in April 1971, subject to appropriate funding. On January 11, 1973, the Exxon Foundation made available funding for the task force. The task force was charged by Governor Winfield Dunn of Tennessee, then chairman of ECS, and was organized during the spring of 1973. It included representatives of the political community, state higher education agencies, national organizations concerned with graduate education and of various types of institutions involved in graduate education. Governor Christopher Bond of Missouri agreed to serve as chairman.

The first meeting of the task force was called on July 20, 1973, in St. Louis, Missouri. The task force as a whole met five times over the next 16 months, holding its final meeting by conference call on November 13, 1974. In addition, a series of subcommittee meetings were held from time to time.

During the process of its deliberations, position papers were presented by various members of the task force. Reports of other agencies dealing primarily with the federal role in graduate education were extensively reviewed. With the help of the Missouri Department of Higher Education, a survey of state planning for graduate education was carried out. The task force authorized a special report by Dr. James Votruba of Michigan State University, *A Study of Regional Higher Education Compacts and Their Potential Role in Graduate Education.*[1]

Under Governor Bond's able leadership the task force reached consensus on the findings and recommendations and the body of the report in time to present it to the ECS Steering Committee on December 5, 1974.

The Education Commission of the States and the members of the task force wish to express their particular appreciation to Dr. Frederick DeW. Bolman and the Exxon Education Foundation for making the work of the task force possible. In addition, the members of the task force wish to express their appreciation to and to acknowledge the contributions of Dr. James Votruba for his report on regional compacts; to Dr. Jack Cross, Missouri Commissioner of Higher Education, for his assistance with the survey of the states and his presentation of the report to the Steering Committee for Governor Bond; to Dr. David Breneman, Staff Director of the National Board of Graduate Education, Dr. Charles V. Kidd, Executive

[1] Copies of the Votruba report will be available upon request in March 1975 from the Education Commission of the States.

Secretary of the Association of American Universities, and Dr. John Chase of the U.S. Office of Education for their contributions of background materials and sage advice in the deliberations of the task force; and to Dr. Robert E. Carter of the Kentucky Council on Public Higher Education for his help in drafting much of the body of the report. The task force also expresses its appreciation to Dr. William D. Copeland, Dean of the Graduate School, Colorado School of Mines, for a special paper on access to graduate education.

Finally, ECS through its Steering Committee, by unanimous vote at its meeting on December 5, 1974, wishes to express its deep appreciation to the members of the task force for their contributions of time, effort and wisdom in the work of the task force and in producing this report.

Richard M. Millard
Director, Higher Education Services
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I. FINDINGS AND RECOMMENDATIONS

Graduate Education Essential to Welfare of States and Nation

Graduate education, including research, is essential to the welfare of the states and the nation. It is a significant provider of intellectual and cultural leadership, research potential and the highly educated professional and technical human resources necessary to translate research into social, industrial and economic action. It also provides and is the source of new knowledge both historically and currently. It provides the innovators, the planners and the teachers critical to state and national well-being and survival in the complex, interrelated and technologically based world of the last quarter of the 20th century.

State Responsibility for Graduate Education

While graduate education with its attendant research, including master's and doctoral programs, is clearly a national resource, it is also a regional, state and local resource. Primary responsibility for providing educational opportunity constitutionally and historically rests with the states. The private universities in which graduate education originated in this country have and continue to play a crucial role. But the states have encouraged graduate education in private universities through tax exemption, student support and, in some cases, direct subventions and have directly provided opportunity for graduate education in their public institutions. Support for graduate education, because its contribution is not bounded by state lines, and because of its high costs, requires federal as well as state involvement.

Current Questions and the Credibility Gap

Currently, serious questions have been raised about the adequacy, efficiency and quality of graduate education by legislators, governors and citizens, including, in some cases, students, faculty and administrators of graduate institutions themselves. Due in part to escalating costs, student unrest in the late-1960s and early-1970s, management practices that have been criticized, dislocation in human resources and other factors, a credibility gap has developed in relation to higher education as a whole and graduate education in particular.

Graduate education is costly. Governors, legislators and citizens are concerned about its status and rationale. How much and what kinds of graduate education are needed? By whom and for what purposes? Are some graduate programs overly specialized and overly developed for meeting the current human resource needs of our society? Do we need the number and types of programs we have? Has quality been sacrificed for quantity?

Institutional, Federal, State Partnership Essential to Insure Quality and Efficient and Effective Use of Resources

Increasing costs, decreasing federal support, tight state budgets, concerns for human resources issues and a leveling off or decrease in college populations aggravate these questions. If in these circumstances our valuable resources in graduate education and

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research are to be wisely husbanded and their quality protected and enhanced to meet human needs, whether local, state or federal, including the need for new knowledge, it is essential that an effective institutional, state, federal partnership be developed now. Only such a partnership can insure: (1) stability of support in contrast to arbitrary curtailment or expansion of programs in relation to short-range crisis situations, (2) efficient and effective use of existing graduate resources to reinforce quality and diversity of programs and (3) effective complementation of philanthropic, institutional, state and national financial resources.

Coordinated Planning on State and Institutional Levels

In our judgment such insurance calls for, in fact is not possible without, coordinated planning on all levels. Responsibility for such planning rests primarily with the states and their higher or postsecondary education agencies working in cooperation with educational institutions. Such planning, to be effective, must be both realistic and long range, taking into account the required time span, particularly in doctoral education, to accomplish desired objectives. Quality development in graduate study cannot be accomplished by precipitous changes. Thus:

Plurality of Sources of Support

1. The task force endorses continuation of a plurality of sources of support for graduate education and research—philanthropic, business and industrial, state and federal.

State Responsibility for Basic Institutional Support

2. The states have the primary responsibility for the basic institutional support of both graduate and undergraduate programs in their public universities.

State and Institutional Responsibility for Efficient and Effective Use of Resources

3. The states in cooperation with the universities have the responsibility to help insure that graduate resources within the state are utilized as efficiently and effectively as possible to provide diversity, access and quality of graduate education—both public and private—commensurate with individual and societal needs and the interests of students and the citizens of the states and nation.

Federal Responsibility in Support of Research, Students and National Programs

4. The federal government should have primary responsibility for support of research, graduate students and programs of major national import. It should also share responsibility for assisting qualified graduate schools with needed innovations, new delivery systems and cooperative arrangements that transcend state barriers.

Business and Industry Responsibility

5. Business and industry should accept greater responsibility for support of research, students and programs of direct benefit to the business and industrial community.

Philanthropic Support of Innovation and Basic Research

6. Foundations and philanthropy should accept as one of their functions sharing with states and the federal government in helping to provide for innovations in graduate education and basic

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research in support of extension of knowledge into new areas of public and scholarly concern.

State Responsibility to Provide for and Strengthen Effective Planning for Graduate Education

7. We recommend that the states, in fulfilling their basic responsibilities, should provide for and strengthen the potential for effective planning for graduate education and research as integral to the total planning for postsecondary education in the state. They should also share in the support of capable graduate students with special financial needs. This should be done through the appropriate state agency in cooperation with the institutions.

Balanced Planning Through Complementation of Institutions and Programs

a. The states should encourage development of balanced planning of graduate programs and research within institutions and among institutions in the state through complementation of programs and institutions rather than competition and duplication. The development of such planning should take into account:

Unique Resources

(1) Unique resources in faculty, facilities and equipment of particular institutions—public and private;

Reasonable Accessibility

(2) Accessibility of graduate studies including programs at the master's level, specialized programs, less than doctoral programs related to occupational or technical areas and nondegree programs;

Human Resources Needs

(3) National, state and local human resources needs to the extent that these have long-range relevance for specialized programs; and

Emerging Needs

(4) Provision for development of new and imaginative areas of graduate education to meet emerging student and social needs.

Goals and Objectives

b. The states should encourage development of clear statements of goals and objectives for the various types and levels of graduate education and institutions in the state. Private institutions should be involved in this process from the beginning.

Qualitative and Quantitative Criteria for Program Review

c. The states should seek to develop effective qualitative and quantitative criteria for review of existing programs, elimination of programs and approval of new programs. We recognize that the states may be limited in the application of such criteria to private institutions and to some public institutions with special constitutional status. However, we would urge private and constitutionally exempted state universities—including those institutions primarily national in orientation and contribution—not only to cooperate in the development of criteria but also to make maximum use of the criteria in their own planning and evaluation activities. Such use by all graduate institutions in cooperation with state agencies is in their own best interests, as well as in the interest of quality control and potential contribution to an

Private Graduate Universities and Universities with National Orientation

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adequate system of education for the states and the nation.

Uniqueness and National Contribution of Programs

(1) While such criteria must take into account student utilization (enrollments and degrees awarded), such a quantitative approach needs to be tempered by consideration of uniqueness of programs and their contribution to the national scene as well as state and regional needs.

Varied Objectives of Graduate Education (Master's and Doctoral)

(2) In addition, criteria should be concerned with quality in relation to the various objectives of graduate education including:

Technical and Professional

—Provision of technical and/or professional education through one or two years of post-baccalaureate work;

Specialized Learning Opportunities

—Provision of specialized learning opportunities for older non-degree students;

Education of Practitioners

—Education of practitioners such as social workers and architects;

College Teachers

—Education of college teachers;

Research Oriented Doctoral Programs

—Education of research-oriented Ph.D.'s for business and industry, for research institutions, for pure research and additions to knowledge, for transmitting and enhancing the cultural heritage and to meet national technological, scientific and cultural objectives.

Need for Continued Work in Criteria Development

Development of such criteria and their application is not easy, but we strongly encourage continued work in this direction not only by peer groups and state agencies but by appropriate national organizations. We also urge that such criteria be reviewed and utilized as they become available.

Consortia Among Public and Private Institutions

8. The state agency in cooperation with institutions and programs should encourage the development of consortia for shared resources among both public and private institutions within the state and the region. Public universities should be encouraged to accept leadership in development of shared graduate resources and programs with private universities.

Informational Capacity for Effective Planning and Funding

9. The state through the appropriate state higher or post-secondary education agency in cooperation with the institutions should develop the informational capacity for effective planning and funding. This should include:

Inventory

a. An inventory of programs, their capacities and locations;

Enrollments and Career Trends

b. Current, periodic and comparable information on enrollments, enrollment trends, distribution of students by fields, student support funds, enrollment of women and minority students, career trends of both master's and doctoral candidates and degree recipients;

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Comparable Cost Data

c. Adequate and comparable cost data on graduate programs by type, level and institution. We are fully cognizant of the difficulties involved in developing such cost data, including dealing with such complex and as yet unresolved areas as joint costs, support program costs, the relation and interdependence of graduate education and research and the legitimate differences in costs in the light of institutional settings, program objectives and purposes for which information is to be used. We caution institutions, state agencies and executive and legislative branches of government against the serious errors that can result from using simplistic cost analyses and interpretations such as those designed basically to measure unit costs of undergraduate education. Nevertheless, we recognize that development of adequate cost data is essential. Without at least adequate cost data the rationale for supporting decisions at various levels of graduate education will, at best, be arbitrary, but cost data alone are not sufficient to provide a basis for intelligent decisions at various levels. We urge continued and accelerated development of cost data in graduate education by concerned and interested parties including institutions, state agencies and appropriate national organizations.

Complexities in Cost Data for Graduate Education and Research

Danger of Simplistic Cost Analyses

Need for Continued Development of Cost Data Analysis

Assessment of Benefits

d. Development of a more adequate assessment of benefits of graduate education. While we doubt the value of traditional cost/benefit analysis in graduate education or that it can, in fact, legitimately be applied here, we do urge the importance of more adequate assessment of the social, economic and individual benefits of graduate education and the need for including such benefit analysis in developing the rationale for support of graduate education.

Accountability

e. Clear acceptance on the part of state agencies and institutions of the concept of accountability not only in disclosure of information but also in relation to the judicious use of funds. We are convinced that failure to move in this direction can only work to the detriment of institutions, programs and graduate education in general by increasing the credibility gap between the institutions and legislatures and the general public and by inhibiting or undermining effective planning to meet social and educational needs.

Interstate and Regional Planning

10. Regional planning and sharing among states in the use of resources in graduate (and professional) education and research are essential. The major programs in graduate-student exchange existing in regional compacts (Western Interstate Commission for Higher Education, Southern Regional Education Board and the New England Board of Higher Education) should be supported and further encouraged. New ways should be found to strengthen these existing regional compacts. However, particularly in those states not within a regional compact, legislators should consider authorizing the state higher or postsecondary education agencies—in cooperation with institutions and their counterparts in adjacent

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states—to engage in common planning with neighboring states in developing the regional potentials for graduate education and research. Wasteful duplication among states of high-cost programs and research facilities including computer networks cannot be justified to taxpayers or legislators. Many programs and research facilities can be developed far more effectively on regional bases through shared costs than individually by states, thus enhancing quality and reducing costs. Local pride is not a sufficient justification for costly duplicate programs and research operations whether graduate or professional. In developing interstate or regional graduate programs, tuition adjustments or equalizations and even balance of payments among states must be considered if regional programs are to be equitable and effective.

Relation of National Universities to State and Regional Planning

It is in terms of such interstate or regional planning that the unique role of institutions with primarily national orientation can and should be recognized and provided for. This is not to say, however, that such institutions can or should be disregarded on state planning levels. To the contrary, they constitute major educational, cultural and economic resources for the states and nation. State planning that did not take them into account (whether public or private) would be extraordinarily short-sighted. What is important, however, is that their multidimensional character (state, regional and national) be recognized and provided for.

The State-Institutional-Federal Partnership

11. An effective institutional, state and federal partnership is essential to the development of a responsive and responsible system of graduate education. Each of the partners has a crucial role to play:

The Federal Role in Partnership

a. *Federal Role:*

While the federal role in the past two decades has included support of research, students and institutional programs with national focus and facilities, it has recently undergone change and curtailment which sometimes have led to dramatic and pronounced effects on states and institutions.

Research, Student and Program Support in Cooperation with States and Institutions

(1) We believe that the federal role should continue primarily to be support of research, graduate students and programs which are basically in the national interest. It should also share responsibility for assisting qualified graduate schools with needed innovations, new delivery systems and cooperative arrangements that transcend state boundaries. This role should, however, be exercised cooperatively by the Congress and the Administration working with institutions and state agencies and not by the federal government alone. It should include a clear recognition of the role of the states through appropriate state bodies and institutions both in policy and legislative development and in implementation.

(2) Since research funds, programmatic and institu-

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tional funds and student funds have a direct impact on institutional role and scope and thus on state support, it is crucial that the states not only be consulted but be involved in federal institutional policy development, legislative consideration and development and implementation of guidelines.

Involvement of States and Institutions in Determination of Federal Policy

Federal, state and institutional policies should complement each other. To the extent that they do not, or work at cross-purposes, resources are wasted and the public concern for effective graduate education is jeopardized. Past history of some federal funding has lead to institutional over-extension in some instances and development of programs not in harmony with state and institutional objectives. Such programs, including the so-called "over-production" of highly educated human resources in certain fields, illustrate all too well the disfunctional character of programs developed without consultation with the states and graduate institutions.

b. *The State Role:*

The states have a responsibility for developing and supporting an effective planning agency to work with the institutions on the one hand and the executive and legislative branches of government on the other.

The State Role in Partnership

Effective State Planning Agency

(1) Legislators and state executives within the framework of public policy should require adequate information and planning on which to make policy and funding decisions. Once the decisions have been reached, the affected institutions should have administrative and operational freedom to achieve these objectives—but they should be held accountable for achieving them.

Planning and Policy Determination Versus Operational Control

(2) We believe that the states have a major responsibility through the appropriate state agency in cooperation with the institutions to review and fund graduate programs and research. Such review and funding should be done in the light of reasonable criteria taking into account diversity, need, quality and output. They should also reflect a concern for eliminating inefficient or qualitatively inadequate programs, preventing proliferation and unnecessary duplication and encouraging interinstitutional and regional cooperation in developing shared resources.

Review and Funding in the Light of Adequate Criteria

(3) There can be little justification at the present time for new doctoral programs that duplicate existing ones and for which a pressing need cannot be demonstrated. At the same time, however, if emerging needs in new areas or new types of students, changing requirements for highly educated human resources and new knowledge are to be met, opportunities for new programs should remain open. What is important is that program additions or deletions be made on reasonable grounds in the light of need and not arbitrarily in relation to crises, special interests or community pressures. Simply establishing moratoria on program development is no substitute for critical analysis.

Critical Program Analysis

State-Federal Role in Partnership

c. *State-Federal Role:*

Access and Opportunity

Among the serious issues on which the state and federal government should work in close cooperation with each other and the institutions is the area of access and opportunity to accomplish educational objectives of women, minorities, the educationally disadvantaged and part-time students. This is not an area in which easy answers are possible. While both federal and state student aid can and should be addressed to overcoming economic problems of capable students, the basic problems in this area are more fundamental than student aid. If opportunity for graduate education of women, minorities and the educationally disadvantaged but potentially capable students is to be improved, state and federally funded programs of early identification and support of appropriate levels of undergraduate preparation are essential. In addition, opportunities for part-time graduate programs away from campuses and refresher courses, as well as direct aid for persons who have had to interrupt their educational progress, need further exploration on state and federal levels.

Early Identification and Undergraduate Preparation

Institutional Role in Partnership

d. *Institutional Role:*

In the partnership that will increase the viability of effective graduate education it is incumbent upon graduate institutions including those institutions primarily national in scope:

Internal and External Review

(1) To engage in a continuing effective internal and external critique of their own graduate offerings in the light of clearly enunciated objectives;

Relevant Information

(2) To supply the essential information necessary for effective planning on state and regional levels;

Cooperation with State Agency in Planning

(3) To participate and cooperate with the appropriate state planning agency in the basic planning effort;

Accountability Educationally and Fiscally

(4) To recognize the continuing responsibility for accountability both educationally and fiscally;

Involvement of Faculty and Students

(5) To accept the responsibility for involvement of faculty and students in both the planning process and in creating an awareness for the need for intra- and interinstitutional cooperation and reinforcement;

Programs to Meet Emerging Needs

(6) To provide initiative and insight in developing new graduate programs to meet emerging needs and modifying existing programs to increase their effectiveness and relevance in a changing world;

Initiative in Search for Knowledge

(7) To provide initiative in the search for new knowledge.

In our judgment, the resources of quality graduate education and research are critical to the continued health and development of the nation. They are too valuable to be diluted or squandered. Only through an effective federal-state-institutional partnership can they be protected and strengthened to meet societal needs in the decades ahead.

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II. INTRODUCTION

The primary responsibility for education in the United States rests with the states constitutionally, historically and in practice. This general responsibility includes the provision of graduate education with its intimate relation to the research that has given this nation technological, educational and cultural eminence.

A democratic society demands an educated electorate. In colonial times, common schools were established to provide the citizenry with the ability to read, write and do arithmetic computations—originally at the expense of the individual scholar and his family, but then at the expense of the town. In the second half of the 19th century, high schools were developed to provide a wider breadth of education—again, initially at individual or family expense, followed by public support and laws making that support mandatory. College attendance never has been mandatory, but government has provided support, either for the individual or the institution, since the earliest days. Our technological- and service-oriented society has required increasing numbers of individuals with college preparation. Increasing support has come from the local, state and federal levels to see that the requirement is met.

In recent years, a series of reports by various commissions and groups has been devoted to the actual or potential role and responsibility of the federal government. But very little attention has been devoted in these reports to the role and responsibilities of the states in graduate education or the responsibility and accountability of graduate institutions and programs to the states.

During the period of rapid expansion of higher education in general in the 1960s, the focus at the state level was not primarily on graduate education but on increasing the accessibility of community colleges, senior colleges and universities to undergraduates through institutional enlargement and creation of new campuses. Graduate programs expanded with other programs at established graduate universities, at the emerging universities that had formerly been state colleges and at new institutions. This expansion has been encouraged and reinforced in the post-Sputnik era by federal programs designed to increase scientific human resources, broaden the geographic distribution of graduate and research programs and develop the faculty to match expansion of higher education in general.

The situation has changed radically in the 1970s. The period of rapid expansion is over. Escalating costs for higher education in general and graduate education in particular have helped to crystallize questions of accountability, effective use of resources and the relation of graduate and professional programs to undergraduate education and other forms of postsecondary education. The formation of the Task Force on Graduate Education by the Education Commission of the States (ECS) grew out of concerns expressed to the commission by state legislators, institutional representatives, representatives of major national higher education organizations and others in relation to: (1) the changing patterns of federal funding for graduate education, (2) whether graduate education is primarily a state or a national resource, (3) the growing surplus of highly educated human resources in certain areas, (4) continued expansion and development of new graduate programs in what has appeared to be duplicative patterns at the same time that some established graduate schools were curtailing programs, (5) increasing costs of graduate education, (6) decreasing student-aid support with increasing costs to graduate students and (7) the danger of the kind of crisis reaction that might impair state and national potential for needed research and highly educated manpower for the states and nation in the future. In all these areas of concern, just what constitute state, federal and institutional roles and responsibilities in dealing with the problems has been less than clear.

The Steering Committee of the Education Commission of the States authorized the formation of a representative task force to explore more fully the role in graduate education of the states vis-a-vis the federal government and institutions. ECS Chairman Winfield Dunn, governor of Tennessee, charged the task force as follows:

> The function of the task force is not to engage in basic research. Much of this has already been done. . . . Rather, the function of the task force will be to consider: . . .
>
> (1) What are the respective roles of students, institutions, foundations, business and industry, the states and the nation in support of graduate education to assure an adequate supply of trained manpower to meet foreseeable state and national needs?
>
> (2) What are the responsibilities in terms of effective planning to meet national, state and local needs in graduate education of

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institutions, states, regions and the nation?
(3) How can such effective planning be carried out to make maximum use of limited resources and also insure quality of programs?

While the task force recognized the important contributions of students, foundations, business and industry to the support of graduate education, this report concentrates primarily on the institutional, state and federal roles as representing the major sources of support. The governor's charge also implied at least three limitations: (1) the concern of the task force should not be with the internal characteristics of degree programs or institutional structures except as these relate to policy issues in planning and funding; (2) the primary concern of the task force should be with the interface among institutions, between institutions and states and between the states and the federal government; (3) while primarily professional programs (e.g. medicine, law, dentistry) are post-first baccalaureate and thus technically graduate, these fields deserve special attention in their own right and should not be the primary focus of the task force which, rather, should concentrate on master's and doctoral degree programs normally associated with graduate schools.

The task force agreed to deal with the charge by considering: (1) the role and aims of graduate education in contemporary society; (2) the current problems and concerns involved in providing effective graduate education, particularly as these are reflected at the state level; (3) the planning for graduate education as a state concern; (4) the financing of graduate education, including states' responsibility; (5) what the role of the states should be in planning and financing graduate education; and (6) recommendations growing out of these considerations.

A. The Need for and Dependence of Society on Graduate Education

The graduate schools of the nation should provide—and at their best, do provide—the advanced education and stimulus necessary to develop: (1) the intellectual leadership and skills in research and practice (including technical training) essential to the advancement of knowledge, (2) the understanding of ourselves and the universe in which we live, (3) continued technological advance, (4) improvement in the quality of life for all members of society and (5) the advanced manpower needed by the nation. To the extent to which graduate schools succeed, not only the participant graduate students, but even more the society of which they are a part, benefit immeasurably. In fact, the survival of our nation and civilization as we know it may well depend on the success of graduate education in the contemporary world. To the extent that these schools fail, valuable human resources are wasted or lost, and the states and the nation are correspondingly impoverished.

B. At the National Level

As the nation's Bicentennial approaches, it is profitable to consider the role graduate education and research have played in the country's development. The continuous evaluation of and improvement in the quality of life is a basic human characteristic, but the incentive or motivation to strive for higher standards is based in a large part upon the collective intellectual curiosity of an increasing majority of people. Much of the credit for developing and supporting this incentive belongs to the public and private colleges and universities across the nation that have contributed the intellectual leadership essential for the research and development of goods and services. In discussing the purpose and social role of graduate education, the National Board on Graduate Education has identified four issues that must be considered in reviewing the role of graduate education in the United States: (1) the education and development of skilled individuals, (2) the production of knowledge, (3) the preservation and transmission of knowledge and (4) the quality of life in our society.[1] This nation continues to benefit from diverse postsecondary institutions—public and private—which provide the necessary intellectual foundation and academic resources through undergraduate and graduate education, research and public service.

C. How Graduate Education and Research, Both Public and Nonpublic, Serve the States; Statewide Expectations for Graduate Education and Research

Most postsecondary institutions are responsive to the needs of the states in which they are located. They provide assistance in identifying state-level issues, training individuals to investigate these issues and conducting research activities to resolve state-level problems. This institutional interest in responding to state-level needs increases with time and reflects a growing recognition of the central role of the states in postsecondary education.

[1] National Board on Graduate Education, *Graduate Education: Purposes, Problems and Potential*, November 1972, pp. 4-6 (see also: National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, p. 1).

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The Education Commission of the States' Task Force on Coordination, Governance and Structure of Postsecondary Education, in stating general assumptions, pointed out that under the federal and state constitutions, as well as in practice, the states have the primary responsibility for education.[2] All public and private institutions within a given state are chartered to operate in the state and receive state support in a variety of ways from direct appropriations for institutional support to tax exemption.

Postsecondary institutions have an obligation to respond to statewide expectations in ways appropriate to their roles and resources in undergraduate and professional education and in graduate education and research. While postsecondary educational institutions and governments, businesses and service organizations have worked together to a greater or lesser degree at the state and local levels, this relationship can be strengthened through effective coordination and planning to provide the broad-based academic resources needed to solve the problems and improve the standards of goods and services within each state.

D. Investments in Graduate Education and Research

Graduate education and research receive financial support from public and nonpublic sources. However, the percentage distribution of this revenue obviously varies between the public and private institutions. A 1968-69 analysis of revenues by institutional type at the graduate level found that public universities obtained approximately one-fifth of their income from the federal government, two-fifths from the state, one-tenth from tuition and fees, and one-eighth from auxiliary enterprises, with the remainder coming from miscellaneous sources. Private universities received almost one-third of their income from the federal government, only two per cent from the state, about one quarter from tuition and fees, one-tenth from auxiliary enterprises, approximately eight per cent from private gifts and six per cent from endowment income.[3] To this support of private institutions, however, must be added major subsidization by the states through institutional tax-exempt status. This diversity of financial support of graduate education and research illustrates the multi-level response to national, state and local needs discussed earlier.

Recent shifts in federal and state policies are causing redistribution in these percentages and have raised basic questions in relation as to how graduate education should be provided and by whom. The National Board on Graduate Education has emphasized the important role of the federal government in financing graduate education and research by stating that neither the private market nor local areas or states can be expected to bear the whole burden of financing graduate education and research when the benefits are diffused so widely and constitute a national resource.[4] On the other hand, the report also points out that federal aid should not substitute for either private giving or state support:

> The $1.6 billion in private gifts to colleges and universities in 1971-72 is a central and indispensable source of revenue for many institutions and provides the margin for excellence in many others. . . . So far as states are concerned, the federal government cannot be expected to assume responsibility for the basic institutional support of state universities. . . . No foreseeable change in the purposes or amount of federal support will change this basic dependency. Indeed, the trend toward specific state support of private graduate education, developed most notably in New York State, points toward an expanded financial role for the states.[5]

E. Responsibility for Graduate Education and Research

There have been, and should continue to be, varying levels of responsibility and support for graduate education and research. The relative percentage of support from each sector will depend upon public policies based on careful studies and planning conducted by federal and state governments in cooperation with the institutions. In considering the role and responsibility of states in planning for and financing graduate education and research, it is necessary to review some of the current problems and concerns in graduate education as these relate to its effective support.

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[2] Education Commission of the States' Task Force on Coordination, Governance and Structure of Postsecondary Education, *Coordination or Chaos?*, October 1973, p. 8.

[3] Dresser, D. L., and Chapman, D. W., *The Finance of Doctoral Education: Revenues, Expenditures, Costs and Formulas*, New York State Board of Regents' Commission on Doctoral Education, September 1972, pp. 6-9.

[4] National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, p. 2.

[5] Ibid., p. 3.

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III. CURRENT PROBLEMS AND CONCERNS RELATED TO PUBLIC POLICY ISSUES IN GRADUATE EDUCATION AND RESEARCH

A. Political Realities Regarding Needs and Accomplishments in View of Public Investments in Graduate Education

Due in part to ascending costs, in part to the unrest of the late-1960s, in part to institutional management policies and in part to dislocations in human resources and other factors, a credibility gap has developed in relation to traditional higher education as a whole and to graduate education in particular. Governors, legislators and citizens are concerned about the status and nature of graduate education. How much and what kinds of graduate education are needed? Are we producing too many overly specialized people for the needs of society? Do we need the number and types of graduate education programs we have? Has quality been sacrificed for quantity? The charge is sometimes made that institutions are not reacting or will not react to meet the changing human resources needs of society and the interests of students—that they seek to perpetuate traditional and sometimes self-serving missions.

The late-1950s and 1960s was an expansionist period when colleges and universities were expected to accommodate a rapidly increasing enrollment and solve major social problems as well. As the institutions responded by expanding programs, hiring faculty and staff, constructing new facilities and providing all the support services required, costs progressively became a major concern. As a result, higher education came under increasing scrutiny by governors and legislators. They continued to support the institutions, but without clear, understandable information on input and output, needs and costs, upon which to base their policy decisions. Institutions attempted to provide the needed information, but a communications problem compounded the "credibility gap." The ability to communicate an institution's needs and outputs is essential for continuing support from the executive and legislative branches of government. What are some of the key problems of this "communication gap"?

B. Multiple Competing Pressure for Funds at the State Level

One of the problems for graduate education is the competition for funds at the state level. In recent years, state governments have been burdened with increasing demands for financial support of social services, such as health, welfare, safety and transportation as well as support of elementary, secondary, career, undergraduate and graduate education. Although state officials attempt to accommodate all areas, the general condition of the economy has resulted in an increasing scarcity of funds. The problem has been exacerbated by inflation, which undermines the effectiveness of increased funding levels. The executive and legislative branches of government are forced to rank the state's public services according to state priorities. Spokesmen for each social service must be able to communicate their service's needs to the government officials in an effective manner.

C. Alleged "Overproduction" and "Underproduction" of Highly Educated and Trained Persons in Certain Manpower Pools

Because of this intense competition for funds, colleges and universities must justify their requests for appropriations that are purported to have the highest per-unit cost at the graduate and professional levels. The issue is compounded today by what appears to be "overproduction", and in some areas "underproduction", of highly educated and trained persons in certain manpower pools.[6] Contributing factors to this issue include the student "demand" for graduate and professional degrees, changing societal "needs" for highly educated human resources in various fields and a decline in academic appointments based on a leveling off in enrollment projections.

D. Relating Graduate Programs and Research to Changing Needs

Another issue requiring the attention of graduate research faculties is the continual evaluation and improvement of the relationship of graduate education to the needs of society. Although

[6] For detailed discussions see:
—National Board on Graduate Education, *Doctorate Manpower Forecasts and Policy*, November 1973.
—Freeman, R. B., and Breneman, D. W., *Forecasting the Ph.D. Labor Market: Pitfalls for Policy*, National Board on Graduate Education Technical Report No. 2, April 1974.
—Kidd, C. V., "Shifts in Doctorate Output: History and Outlook" *Science*, Vol. 179, February 1973, pp. 538-543.
—Kidd, C. V., "The Ph.D. Forecasting Game," *The Educational Record*, Vol. 59, No. 3 (summer issue) 1973, pp. 63.
—Mariella, R. P., and Ryan, J. W., *The Supply and Demand Situation: A Summary Review*, Council of Graduate Schools Communicator, May 1974.

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some contend that faculty are preoccupied with perpetuating their own interests, much of the program expansion at the graduate level is in response to student demands for courses of study. Improved communication between graduate faculties and the society at large would result in better understanding both of the student demand for graduate programs and the role of graduate education and research in solution of social issues. Related to this is the need for an effective counseling program to inform students of the changing societal needs. Such counseling would permit a student's program of study to be tailored to the individual's interest and to prospective career patterns.

E. Limited but High-Quality Programs Versus Proliferation of Programs and Program Offerings

Another continuing problem is whether scarce resources should be limited to a few high-quality institutions or distributed broadly to all institutions regardless of their "qualitative" ranking. Proponents of the latter position argue that the national goal of universal access to postsecondary education requires the development of all institutions, not just the "elite" few. As a result, federal and state policies have encouraged the conversion of teachers' colleges to state colleges to universities. Many four-year colleges have aspired to become, and in many instances have become, graduate and professional institutions. The National Board on Graduate Education commented in 1972 on this desire for imitation and conformity in graduate education:

> Although there is ample reason to question the need for additional doctoral programs of the traditional variety, faculty members in many colleges and universities continue to press for such programs. Some of the incentives for faculty to be associated with doctoral education are evident, e.g., status, prestige, professional advancement. However, more subtle factors may be involved. We need to understand in a more sophisticated fashion than we currently do, the forces that motivate institutions not offering graduate work to seek to establish doctoral programs. This tendency toward conformity and imitation vitiates the overall strength of higher education which is derived, in part, from its very diversity.[7]

What has been the effect of this proliferation of programs? Several observers have noted small but definite shifts in doctoral enrollments away from the higher-rated graduate programs to those that are ranked lower in quality in the latest study by the American Council on Education (ACE). The ACE report projects that the trend will continue. A more recent study, prepared for the National Board on Graduate Education,[8] questions this trend, however, noting that in 14 disciplines for which comparable data were available, the distribution of doctoral enrollments among institutions has been remarkably stable over the six-year period from 1968 to 1973. Subsequent distribution of doctoral enrollments will depend upon, among other things, the distribution of funds for graduate student support, and this in turn will be heavily influenced by federal and state policies.

F. The Enrollment Decline, Particularly at Undergraduate Levels

The projected moderate increase in undergraduate enrollment up to 1980, followed by a leveling off or decline, is another problem currently facing graduate education and research. Because the undergraduate program is interlocked with the graduate level and provides a source of support for graduate students through teaching assistantships, a decrease in undergraduate enrollment inevitably affects the graduate program. Second, the undergraduate student body has been the primary source for graduate students, so a decrease in the number of undergraduates indicates a potential decrease in the number of graduate students. This may result in pressure upon the graduate schools either to seek graduate students from nontraditional sources or be prepared to reduce their programs . . . or both.

G. Inadequate Data Base and Statewide Indicators for Assessing Costs and Benefits for Graduate Education and Research

Perhaps the central issue in the communications or "credibility" gap is the inadequate data base and lack of statewide indicators for assessing the costs and benefits for graduate education and research. Because of the interrelationship between graduate and undergraduate levels of education, joint costs and other difficult technical problems, common standards for measuring costs of graduate education have not been developed. The wide variance in costs within and among programs as well as the problems inherent in determining costs is well illustrated in *The Cost and Benefits of Graduate Education: A*

[7] National Board on Graduate Education, *Graduate Education: Purposes, Problems and Potential*, November 1972, p. 15.

[8] Breneman, D. W., *Graduate School Adjustments to the "New Depression" in Higher Education*, Washington, D.C.: National Board on Graduate Education/National Academy of Sciences, November 1974.

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Commentary with Recommendations,[9] published by the Council of Graduate Schools in the United States in 1973. Among the recommendations growing out of the graduate cost study is that "additional studies be carried out as rapidly as possible to provide the information which is needed; . . . and the result of such studies be reported as soon as practicable in order to provide a sound basis for the public policy and institutional decisions which are now being called for relative to the costs and benefits of graduate education."[10]

The need for an adequate data base is supported by the National Commission on the Financing of Postsecondary Education, which recommended that comparable financial information for the entire postsecondary education enterprise be collected and reported in a timely and systematic fashion. The commission also urged that financial information associated with institutions of postsecondary education be collected and reported in close cooperation with the states.[11] "When and if the costs and benefits of graduate education and research can be displayed in a clear, precise manner," state policymakers can set appropriations with some degree of confidence.[12] These are inherently difficult problems and precise answers may never be available. But more effective movement in this direction is essential.

H. Resistance and Barriers to Regional Interstate and Intrastate Cooperation

While progress has been made in the development of regional interstate and intrastate cooperation in graduate education, some barriers to such cooperation continue to exist. The three interstate compacts (Western Interstate Commission for Higher Education, Southern Regional Education Board and New England Board of Higher Education) have had major success in regional development of graduate education (see Chapter IV, B). Part of the resistance, however, to regional cooperation lies in actual or perceived inequality among states based on level of support, tuition barriers and residency requirements. Local pride plays some role, as do the issues related to jurisdiction. It can be asked whether one can legitimately share state programs financed by a state tax base and justify it to the voters, especially if one state has a more progressive record and greater financial commitment to its postsecondary programs than do its neighboring states. One needs to know more about the comparability of each state's costs of academic programs and allocations of state resources in order to determine an equitable approach to sharing resources on a regional basis.[13]

I. Inconsistent and Controversial Criteria for Establishing or Dismantling Graduate Programs

Another current problem at the graduate level is the inconsistency and lack of agreement upon criteria for establishing or dismantling programs. The shifting enrollment patterns, increasing costs and changing societal needs bring pressure upon institutions and state coordinating agencies to develop criteria for approval of new programs and elimination of programs. Although a variety of approaches are being considered, we are still at an early state of the art. Until program review procedures are refined and accepted by all parties within states, this issue will remain a central concern.

J. Unequal Access

Graduate education, like education in general, is facing and might face more acutely in the future the question of access for minority groups, women and older adults. Special attention is required to ensure equality of opportunity to attain advanced degrees for such persons if they possess the desire and the capabilities. The Commission on Human Resources of the National Research Council reported that of doctorates awarded in fiscal year 1973:

—Blacks received 2.7 per cent
—All other minority groups combined received 7.7 per cent
—Women received 15.3 per cent.[14]

The challenge to graduate schools is to take the kind of affirmative action that guarantees equally qualified individuals an equal opportunity to pursue advanced degrees without invidious barriers to access because of ethnic, socioeconomic,

[9] McCarthy, Joseph L., and Deener, David R., *The Cost and Benefits of Graduate Education: A Commentary with Recommendations*, Washington, D.C., The Council of Graduate Schools in the United States, 1973, cf. pps. 37-38 and 40-42.

[10] Ibid., p. 42.

[11] National Commission on the Financing of Postsecondary Education, *Financing Postsecondary Education in the United States*, December 1973, p. 130.

[12] National Board on Graduate Education, *Federal Policy Alternatives Towards Graduate Education*, January 1974, pp. 87-109.

[13] Miller, George, *Current Issues in Graduate Education: A Position Paper*, prepared for the ECS task force, July 1974.

[14] Commission on Human Resources, National Research Council, *Summary Report 1973*, Washington, D.C.: National Academy of Sciences, May 1974, pp. 4-5.

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sex or age discrimination. The federal mandate on equal opportunity requires federal and state programs of student financial support especially tailored to the needs of these students. Counseling and other student support services must be provided this group to assist in the students' orientation to graduate study.

The basic problem, however, is one which the graduate schools cannot solve by themselves alone. The answer depends upon identification of capable women and minority students at the undergraduate level, perhaps even at the secondary education level, and insuring that they receive adequate preparation for graduate study. This will require institutional, state and federal programs of identification and support. It may also require broadened programs and support at the graduate level for qualified persons who are not able, because of family, financial and other obligations, to pursue full-time graduate work.[15]

[15] *cf. Scholarship and Society*, Panel on Alternate Approaches to Graduate Education, Princeton, New Jersey: Educational Testing Service, 1973, pps. 35-37.

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IV. PLANNING FOR GRADUATE EDUCATION AND RESEARCH

A. The State/Institutional Interface in the Planning Process

Two previous ECS task forces have addressed the issue of planning and coordination of postsecondary education.[16] Since graduate education and research are included in the definition of "postsecondary" education, this task force supports the other two task forces' conclusions and recommendations as these apply to graduate education and research. Concerning the planning function, these conclusions and recommendations from the 1973 report are illustrative:

> —There is no one best formula or approach for planning, program review or budget review at the state level.
>
> —The state must take into account the needs of all its citizens, the users of postsecondary education, the state's existing postsecondary educational resources, new approaches to educational delivery and the desirability of regional and interstate planning.
>
> —State planning should include clear definition of the objectives, role and scope of the various institutions and segments of postsecondary education.
>
> —The legislative and executive branches of government should support planning and coordination through an appropriate state educational agency, [which] should be a primary, comprehensive and objective source of information and recommendations for the executive and legislative branches of government.
>
> —Planning and its effective implementation are the key to effective coordination and governance.
>
> —Two critical objectives for the planning process must be pursued simultaneously:
>
> —To determine goals of postsecondary educational systems and the institutions and programs in the light of the changing needs of society;
>
> —To use the planning process for continuous review to establish, through institutional and community involvement, a consensus for the goals and their means of attainment.[17]

[16] Education Commission of the States' Task Force on Comprehensive Planning for Postsecondary Education, 1971; Education Commission of the States' Task Force on Coordination, Governance and Structure of Postsecondary Education, 1973.

[17] Education Commission of the States' Task Force on Coordination, Governance and Structure of Postsecondary Education, *Coordination or Chaos?*, October 1973, pp. V-XI.

1. Who Plans for What? Levels of Decision Making

The above conclusions and recommendations apply to all aspects of postsecondary education, including graduate education and research. The state clearly must have a central role in planning for graduate education and research. Because recipients of advanced degrees tend to be more mobile than those receiving bachelor's degrees, and because the "products" of research programs benefit the nation and the world, it may seem that the state should not have the primary responsibility for planning graduate education and research. Perhaps such planning should be the primary responsibility of the federal government. However, the state is responsible for the basic support of its public institutions, of which the graduate level is a part.

The state is also responsible for realistic assessment of graduate resources and their effective utilization, including the graduate resources of private institutions. The interrelationship between the undergraduate, graduate, research and public service functions of an institution requires that planning be done at both the institutional and state levels. This does not mean that the federal government has no role in planning graduate education and research; rather the federal government should work with all states to coordinate identification of national needs and develop a balanced program where the postsecondary system within each state contributes appropriately to attaining these national goals.

2. The Critical Role of Adequate Information: State and Institutional Responsibilities

Central to the planning process is the establishment of an adequate information base upon which policy can be developed and implemented. The state coordinating agency, or governing board where there is one, and the state's institutions have primary responsibility for developing this data base. The 1973 Education Commission of the States' task force noted that:

> It is essential that the planning agency, in cooperation with the institutions, develop an adequate information system relevant to the planning process itself and that the institutions be willing to provide the necessary information. There is no virtue in collecting data for the sake of collecting, but there is every necessity that the relevant facts be made available if the planning process is to have significance.[18]

[18] Ibid., p. 46.

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Within each state, information has been collected and analyzed for years. The challenge is to refine or modify the system in each state so it provides adequate, accurate and relevant information upon which policy decisions can be based. Such a system should permit comparability of data among institutions within states and comparability between states. Its fullest value to the planning process within a state depends upon the flexibility by which the system can accommodate unique data needs. Whatever system is used within each state, it is clear that governors, legislators and the public expect the state coordinating agency and the institutions to cooperate in providing accurate and relevant information for planning purposes.

3. Utilization of Public and Private Institutional and Program Resources

In planning for graduate education and research, all appropriate institutions in the state should be involved. The resources and interests of both public and private institutions offering graduate education should be utilized to maintain and strengthen the diversity of the postsecondary system. Under the current conditions, concerns about erosion of the support base and about invasion of institutional autonomy at both public and private institutions are being tempered by the realization of the need for careful planning, which results in the most appropriate distribution of scarce resources. Cooperation by all postsecondary sectors is occurring in an increasing number of states.

4. Labor Market Needs and the Use and Limitations of Human Resources Data

One of the most important challenges to those involved in planning for graduate education and research during the next 10 to 15 years is the proper use, including recognition of the limitation, of human resources data and labor market needs. This issue has received much attention because of its impact on long-range planning and financing (see footnote No. 6 for references). The question remains—what is the proper use of such data in determining plans for graduate education and research?

At the state level, the Tennessee Higher Education Commission has prepared a statement on this subject. In general, the Tennessee policy would give more weight to job market prospects in fields where training is more specifically occupationally oriented and to job prospects at the graduate and postbaccalaureate professional levels than the undergraduate level. This policy would also take into account in the planning process that reasonably accurate human resources projections are not always possible in a given field. The Tennessee commission recommends, first, a continuing regional, state and national program of assessment of human resources needs, comparable in quality methodologically with the National Science Foundation series, "Projections of Science Manpower 1969-80," and covering all major graduate and professional fields on a 10-year sequence. Second, the commission suggests that there should be an information and consultation program to assist state higher education planning agencies to utilize, interpret and adapt national projections of human resources at the state and institutional level.[19]

Following an analysis of doctorate production problems, forecasts and related market adjustment processes at the national level, the following has been suggested concerning the relationship of labor market forecasting to the planning function:

> The immediate state of the labor market should be used as a guide for appropriate countercyclical policies that will dampen rather than increase the periodic fluctuations. Unfortunately, over the last 20 years, the federal government has generally played a destabilizing role by overreacting to the shortages of the 1960s thereby contributing to the surpluses of the early-1970s and by overreacting to these immediate surpluses in a manner likely to create shortages in some fields in the late-1970s. This experience suggests that the wisest policy would be one of gradual change in federal and related policies, as opposed to the sharp swings in support for graduate training and Ph.D. work activities. Graduate education and research should be viewed as long-run resources and activities and not be subject to exogenous, policy-induced fluctuation based on a short-term crisis psychology.[20]

Continued cooperation of institutions, state and federal agencies is required to resolve factors that must be considered in the planning and refinement of human resources forecasting policy. Involvement of all three levels is essential to assure the development of an information system that permits appropriate decision making and guards against the improper use of information to the detriment of students, institutions and the national well-being.

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[19] Tennessee Higher Education Commission, *Issues in the Use of Manpower Data for State Higher Education Planning in the Graduate Field*, mimeograph, no date.

[20] Freeman, R. B., and Breneman, D. W., *Forecasting the Ph.D. Labor Market: Pitfalls for Policy*, National Board on Graduate Education, Technical Report No. 2, April 1974, p. 38.

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5 State and Institutional Concern With Quality and Quantity

In writing about doctoral planning for the 1970s, Lyman Glenny urged that "The watchwords for the 1970s should be: *Limit the number of doctorate programs and improve the quality.*"[21] He described the quantitative increase of graduate education and research during the 1960s with concomitant increase in costs. In describing the projected reduction in output forecasted for the 1970s and 1980s, Dr. Glenny (director, Center for Research and Development in Higher Education, University of California, Berkeley) had this advice for the states:

> In states which have limited financial resources, it would seem sensible to bring undergraduate educational levels up to or beyond national norms rather than to increase the amount of graduate education. . . . [Graduate] programs that may well be eliminated are those which have not or will not reach optimum enrollments before 1974 or 1975. If they have not done so by then, they are unlikely to thereafter.[22]

The quality of all educational programs and services is a concern of faculty and administrators of the institutions, members and staff of state coordinating or governing agencies, those who administer federal or philanthropic programs and state governmental leaders. This concern has reached a new level of significance in the current tight budget situation. Graduate programs that do not measure up to standards of quality are and should be in jeopardy of elimination. The problem, of course, is: what are the standards of quality, who measures them and who makes the decisions on each program? The American Council on Education has conducted two national studies that ranked graduate programs on a qualitative basis according to the opinion of faculty and deans about programs in their fields. Because of this "in-house" approach, these rankings have been seriously challenged in some quarters.

Several state coordinating agencies or governing boards approve requests for new programs and review existing programs. Two basic approaches are currently in use: (1) to establish high standards of quality and eliminate programs that do not meet them or (2) to establish minimum standards of productivity (based on the number of degrees awarded) and eliminate programs not graduating the minimum number of students. The problem with the former is the identification and definition of appropriate measures of quality. The problem with the latter is the fear that substandard programs will graduate unprepared students.

The National Board on Graduate Education suggests the following guidelines in advising states to examine carefully the need for additional degree programs and in reviewing existing programs in terms of need, quality and output:

> a. A single measure of quality should not be applied to very diverse programs programs that may be serving the needs of nontraditional students for nontraditional forms of graduate education. Multiple indicators of quality, sensibly related to different program missions, should be developed.
>
> b. Statewide planners should resist the temptation to apply simplistic formulas to doctoral programs, such as "eliminate any program that has not produced more than two doctorates within the last two years." Such statistical measures may flag programs in need of review, but no program should be eliminated on the basis of simple statistics alone.
>
> c. When evaluating graduate programs, planners should not attempt state-by-state labor market analyses, since the mobility of the highly educated is certain to confound such analyses. A more appropriate criterion, we believe is assured access to graduate education for residents within the state (or within the region, through reciprocal programs).[23]

Because the quality of graduate programs is so significant to the planning and financing of institutions—and because there is no concensus on the definition or measurement of quality—the Graduate Record Examinations Board and the Council of Graduate Schools in the United States are conducting a major research project on the assessment of quality in graduate programs. This study proposes to use judgments by representatives of the academic disciplines about quality-related characteristics of doctoral programs in order to develop procedures for the assessment of educational quality. In addition, the research proposes to test the reliability and validity of these procedures with data collected from 20 Ph.D. programs in each of three disciplines. The project's primary purpose is to develop reliable instruments and procedures that could be used by anyone—including graduate school faculty and administrators and coordinating agencies—for program improvement and

[21] Glenny, L. A., "Doctoral Planning for the 1970s," *The Research Reporter*, Center for Research and Development in Higher Education: Berkeley, California, Vol. VI, No. 1, 1971, p. 3.

[22] Ibid., p. 3.

[23] National Board on Graduate Education, *Doctorate Manpower Forecasts and Policy*, November 1973, pp. 19-20.

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evaluation and to report the results of policy-related research into the relationships between selected characteristics of doctoral programs and the educational quality of those programs. The project's final report is scheduled for release in December 1975.

6. Access, Public Policy and Human Resources

The statistics on access to graduate education cited earlier are illustrative of one of the major issues confronting colleges and universities. It is the responsibility of the institutions to guarantee equality of access for all qualified candidates and not permit barriers to remain because of overt or covert policies. But what is the nature of these policies? In 1972, the Council of Graduate Schools in the United States (CGS) and the Graduate Record Examinations Board conducted a survey of CGS member institutions to determine characteristics about access policies.[24] There were 195 usable responses from a sample of 302 member institutions (a 65 per cent rate of return). Among other items, the institutions were asked to summarize their policies, which were described as follows:

> The statements accompanying these policy responses show clearly that at least two major groupings can be identified. One large group has policies, written or understood, that assure "equal treatment" to minority and disadvantaged applicants in graduate programs, and a somewhat smaller but substantial group of institutions reports that "special efforts" are being made to recruit and enroll such students, which is similar to an "affirmative action" effort. . . . Several institutions stated that it was the opinion of the respondent that affirmative action programs are examples of reverse discrimination and that their institutions did not countenance such a policy.[25]

It would be interesting to know how these policies have been modified and expanded during the last two years as federal attention has become focussed more intensely on this issue. States have a high stake in helping institutions to assure continuing effort toward attaining equality of access. Only in this way can the states accomplish their stated goal for expanding opportunities for minority students at the graduate level.[26]

[24] Hamilton, I. B., *Graduate School Programs for Minority/Disadvantaged Students: Report of an Initial Survey*. Graduate Record Examinations Board and Council of Graduate Schools in the United States, 1973. 100 pp.

[25] Ibid., p. 25.

[26] cf. *Scholarship for Society*. Panel on Alternate Approaches to Graduate Education, Princeton, New Jersey: Educational Testing Service, 1973, pp. 35-37.

7. The Role of "National" Graduate and Research Universities and Their Relation to the States

The role of "national" graduate and research universities and their relations to the states are another issue in the current status of the state and institutional interface in the planning process for graduate education and research. In a communication to Richard M. Millard, director of Higher Education Services of the Education Commission of the States, Harold Howe II of the Ford Foundation states the issue as follows:

> Although many of these institutions are state supported, they are countrywide and indeed, worldwide in their interest and concerns. The intellectual pursuits of their students and faculties are unlimited by any geographical boundaries; the services they provide to mankind through their research and teaching are similarly unlimited; and if they are to prosper and to make a unique contribution to human advancement, their planning, support and governance must be wider ranging than the confines of a state. . . . The dependence of the nation as a whole on the kind of research and teaching that takes place in this set of public and private institutions is so great that I think there is a kind of national responsibility for their continued health which transcends state responsibility or at least is shared with it. At the present time, I find that national responsibility ill-expressed, ill-organized and ill-funded. . .[27]

As Mr. Howe pointed out, some states have these "national" universities within their borders and provide financial support; however, some states do not have national universities, but do benefit from the output of these institutions. As pointed out in the recommendations, these national universities must be given consideration through regional and statewide planning to maintain their multidimensional character.

B. Current Status of State and Regional Planning: Prospects for the Future

1. Statewide: Criteria in Use in Program Expansion and Limitation

In order to determine the current status of statewide planning for graduate education and research, the ECS task force conducted a questionnaire survey of the state coordinating and governing agencies. Of the 38 agencies that responded, the following lists the number of states with policies and procedures concerning graduate education:

[27] Harold Howe II, Ford Foundation, letter to Richard M. Millard, January 21, 1974.

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—8 states indicate graduate education as an element in their statewide master plan.
—27 states have criteria for evaluation of *proposed* graduate programs.
—9 states have criteria for elimination of existing graduate programs.
—26 states have *intrastate* institutionalized cooperative programs in graduate education.
—19 states participate in some form of *interstate* institutionalized cooperative programs in graduate education, other than or in addition to the three major regional compacts.
—8 states have cost of instruction analyses for graduate education.

Some of the criteria used by states for the evaluation of proposed programs can be listed briefly:

—Student demand and state and national needs
—Projected enrollment in first, third and fifth years
—Relationship of the program to state plan, institutional mission and interinstitutional "fit"
—Quality and viability of programs, staff and facilities.

Some of the criteria for continuation or elimination of existing programs include:

—Justification of need, quality, and cost
—"Efficient" productivity (programs graduating less than a certain number of students are eliminated or placed on provisional status)
—Merging duplicate programs or eliminating one.

The state of New York led the nation in the production of doctorates (11 per cent) in 1970-71. The recommendations of the Regents' Commission on Doctoral Education to the Board of Regents, and subsequent action by the board, are illustrative of one course of action for other states to consider.[28] The commission was charged to make recommendations to the regents for developing policy to meet present needs and to guide the future development of doctoral education in the state. As a result, the regents established a major policy that all doctoral programs shall meet, or show clear potential of meeting, standards of high quality and demonstrated need. To implement this policy, the following objective was set forth in a regents' position paper:

> The review and evaluation of doctoral programs by the Commissioner of Education, in close consultation with eminent out-of-state consultants and also with the State's academic community, according to criteria specified by the Regents. This will be done statewide on a subject-area basis, following which the programs will be placed in one of three categories: (a) high quality and need—to be sustained, (b) intermediate quality and need—to be put on probation for three years and reviewed again, and (c) inadequate quality and need—to be phased out over an appropriate period of time.[29]

The initial assessment was conducted in 1973 in two disciplines and is continuing in additional academic fields. As other states develop criteria for reviewing existing programs and approving proposed programs, it will be important to exchange ideas and concepts in order to establish a procedure that is uniform for national comparisons and yet adaptable to unique statewide situations.

2. Regional: Interstate Planning and Resource Sharing Related to Graduate Education

One approach to many of the problems currently facing graduate education is through greater interstate educational planning and resource sharing. The three regional higher education compacts—Southern Regional Education Board, Western Interstate Commission for Higher Education and New England Board of Higher Education—currently represent the most comprehensive and formally organized interstate form of joint planning and resource sharing related to American graduate education.

The task force commissioned a special study of the role of these compacts in graduate education. The study reinforced the recognition of the need for regional cooperation in graduate education and the major contribution the regional compacts are making in their respective geographic areas. Eight program areas were identified (1) as being of major need and (2) which could be carried out by the regional compacts (by 60 per cent and 70 per cent of the respondents). These eight programs are:[30]

[28] See Commission on Doctoral Education: *Meeting the Needs of Doctoral Education in New York State*, New York State Board of Regents, January 1973; and A Statement of Policy and Proposed Action by the Regents of the University of the State of New York, Position Paper No. 19, State Education Department, August 1973.

[29] Ibid., Position Paper No. 19, p. 19.

[30] Votruba, James C., *An Examination of the Potential Role of Regional Higher Education Compacts in the Development of Greater Interstate Cooperation in Graduate Education*. A report to the Education Commission of the States' Task Force on Graduate Education. Unpublished.

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1. To engage in long-range planning related to the future development of graduate education in the region.
2. To keep state legislators and governors informed concerning issues and alternatives related to graduate education.
3. To assist the federal government better to understand the issues and alternatives facing graduate education in the region.
4. To make available current and reliable information about graduate student financial assistance programs.
5. To assist in the identification of the need for new graduate programs in the region.
6. To promote research aimed at assessing manpower needs that require education at the graduate level.
7. To provide consultation and assistance to statewide higher education agencies charged with planning and coordinating graduate education.
8. To maintain a current and comprehensive inventory of graduate programs and facilities in the region.

Although the research report contains a detailed analysis of varying levels of perceived need and feasibility for other regional programs, these highlights provide important insight concerning those graduate-related educational issues that might be most effectively dealt with at the regional interstate level. The challenge to the states within each compact, and between compacts, is to set priorities to progress toward the goal of better cooperation at the graduate level. There is also a challenge to the states currently not affiliated with a compact to consider the advantages of such interstate arrangements or move toward affiliation with one of the existing compacts. Quite apart from the existing regional compacts, the Panel on Alternative Approaches to Graduate Education of the Educational Testing Service listed as one of its primary recommendations:

> The major comprehensive universities in a single geographical area, working with a state board . . . or a regional agency, should attempt to clarify mission and function among graduate institutions in that particular area and should, in addition, propose a blueprint for cooperative relationships among all the institutions in question.[31]

C. The Federal Impact on States and Institutions in Relation to Planning

Federal policies and programs have had an impact upon the states and higher education institutions in relation to the planning, or lack of planning, of graduate education and research. Due in part to Sputnik, this federal role evolved on the basis of a national scientific human resources rationale, which stimulated the quantitative expansion of the 1960s. Funds were allocated to states on a formula basis for statewide planning in limited areas as a result of the National Defense Education Act, the Higher Education Act of 1965, the Higher Education Facilities Act and similar legislation. These acts resulted in a variety of state planning agencies and only recently has federal policy focused on comprehensive statewide planning.

As conditions changed and the planning functions were reviewed, the question of the appropriate role of the federal government in relation to the states and institutions has become increasingly important. Several major studies have developed positions on what the role of the federal government should be with respect to planning graduate education and research. The ECS Task Force on Coordination, Governance and Structure of Postsecondary Education concluded that the states have the preeminent responsibility for postsecondary education, but the:

> . . . role of federal legislation should be to encourage an effective local-institutional-state-federal partnership in providing postsecondary educational opportunity for all interested and able citizens. Therefore, the task force urges Congress and the Administration to develop federal legislation and guidelines for postsecondary education that take account of the uniqueness of individual states. The federal government also must recognize that national goals can be realized most effectively and efficiently through a variety of statewide responses oriented to common goals, rather than through uniformity among the states in organization and structures.[32]

In reporting on the role of the federal government in graduate education, a U.S. Department of Health, Education and Welfare task force, chaired by Frank Newman, emphasized that:

> . . . *whatever the overall level of federal support*, the federal government in the 1970s must become concerned with the *kind* and *quality* of graduates leaving the nation's universities. The federal role in graduate education cannot be one of simply regulating the overall supply. Rather, national

[31] *Scholarship for Society*, Panel on Alternate Approaches to Graduate Education. Princeton, New Jersey: Educational Testing Service, p. 34.

[32] Education Commission of the States' Task Force on Coordination, Governance and Structure of Postsecondary Education, *Coordination or Chaos?*, October 1973, p. vii.

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policy must seek to redirect graduate education to new social needs and to improve the productivity of investment in graduate education. As opposed to its previous role of financing the growth of various academic disciplines, the federal government must now use its leverage to encourage reform.[33]

In its recent report on federal policy alternatives toward graduate education, the National Board on Graduate Education, which was created in 1971 to analyze graduate education and its relation to American society in the future, urged that national efforts should be directed toward achieving the following goals as the graduate schools adjust to the changed circumstances of the 1970s:

Enhance the effectiveness and efficiency of graduate education, scholarship and research.

–Strengthen the national structure for graduate education, scholarship and research by supporting the strong programs currently in existence in all regions and ensuring that the most talented students are not denied access to these programs.

–Discourage the proliferation of graduate programs, while ensuring that universities have the necessary resources to develop programs in new fields of study and to meet new social needs. In a period of limited resources for higher education, careful review and elimination of weak graduate programs is one potential source of the resources required for such new programs.

–Ensure that the supply of persons with master's and professional- and doctoral-level education is in reasonable balance with the long-term demands of a complex, technological society.

–Sustain a flow of new research findings, basic and applied, required for both the cultural and material well-being of the nation.

–Protect the freedom and the adaptive capacity of the nation's universities.

Ensure the responsiveness of graduate education to the needs of society.

–Ensure that graduate education contributes to the national commitment to eliminate discrimination based on race, sex, age and socioeconomic status.

–Stimulate changes that will encourage the most effective contribution of graduate education and research to the solution of urgent national problems.

–Encourage responsiveness to the needs of students, including the development of graduate programs that serve part-time and older students, as well as the needs of urban residents.[34]

The board's report details several of the problems and unresolved issues currently facing graduate education that complicate the realization of these goals:

–Labor market prospects for graduates
–Financial pressures
–Access to graduate education
–Planning management and cost analysis
–Adjustment problems to the steady state of the 1970s
–Lack of coordination among federal policies toward graduate education[35]

These three reports—by the Education Commission of the States, the U.S. Department of Health, Education and Welfare and the National Board on Graduate Education—illustrate a positive federal impact upon the planning, reform and development of graduate education and research.

[33] Newman, Frank (Chairman), U.S. Department of Health, Education and Welfare Task Force Report on Federal Support of Graduate Education, *The Chronicle of Higher Education*, Vol. VII, No. 23, March 12, 1973, p. 20.

[34] National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, pp. 4-5.

[35] Ibid., pp. 5-6.

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V. FINANCING GRADUATE EDUCATION AND RESEARCH

A. Current Dollar Investment in Graduate Education and Research: Where It Comes From and Attainment of State and National Objectives

The rapid expansion of postsecondary education and the associated increase in cost have resulted in widespread interest and many national studies to determine the most appropriate cost analysis. In writing about the difficulties involved in analyzing the cost of graduate education, F. E. Balderston noted that "costs of a particular program of graduate education are affected by the *scale* of the program, *the methodologies of scholarship and modes of study* specific to the field, the *quality aspirations* for the program and the *efficiency* with which resources are used. Most programs of graduate education also display substantial *jointness* with other aspects of university operation."[36] In pointing out the economic and accounting complexities caused by this interrelationship, Balderston listed the following:

> Graduate education, as conducted in American universities, is intertwined with:
> —Basic and applied university research, both extramurally funded and institutionally supported
> —Undergraduate education through sharing of the same faculty and other institutional resources, through the involvement of graduate students in undergraduate instruction and through the incorporation (after time lags) of research findings and graduate instructional materials in undergraduate courses and curricula
> —"Public service" obligations of universities, because some graduate students are involved in public service functions (e.g., medical residents with duties of patient care in hospitals) and because some research activities have significant public-service aspects
> —Joint processes make for difficulties of cost analysis, as is well-known in the economics and accounting literature. Cost analysis for graduate education is thus an inherently complicated problem.[37]

In discussing the difficulties of cost analysis at the graduate level, Balderston considered the costs to the nation, the student's attendance costs, the institution's cost of the graduate education program and costs borne by specific funding agencies. He concluded that "the appropriate cost concept should be used for each kind of decision about graduate education that is to be faced—long-range, social costs for national policy decisions; one of several forms of investment-cost analysis for prospective students' decisions about entering a graduate program; and, for the graduate institution's several types of decisions about graduate programs, the appropriate cost approach for each."[38]

1. The Role of Research and Undergraduate Level in Support of Graduate Education, and Vice Versa

The mutually supporting role of graduate education and research does benefit the institution, faculty and students. Graduate faculty who are actively involved in research in their fields are at the frontier of their disciplines and set examples for those students who are becoming researchers. The students, in turn, assist the faculty members on research projects. This helps the students by exposing them to research opportunities and provides them some financial assistance, while keeping the costs of student time at a lower level than would be required for a full-time research assistant. All parties benefit from this economical arrangement.

This same situation applies between the graduate level and the undergraduate level. Both faculty and students from the graduate level teach courses in the undergraduate departments. This is less costly than having a completely separate faculty for the undergraduate level. By selecting graduate faculty and students with the ability to communicate with undergraduates who are not as advanced in their grasp of concepts and knowledge, the quality of the programs and the intellectual curiosity of both faculty and students can be enhanced.

2. The Differences in Support of Master's and Doctoral Education

In considering the financial status of graduate education and research, it is important to note the differences between the doctoral level and the master's level. These differences can be attributed to the nature of the activities performed at each level. Class size at the master's level usually is larger than at the doctoral level and is more economical. The master's thesis or research paper usually is an application of existing knowledge and requires less faculty time

[36] Balderston, F. E., "Difficulties in Cost Analysis of Graduate Education," *Federal Policy Alternatives Toward Graduate Education*, January 1974, p. 127.

[37] Ibid., p. 128.

[38] Ibid., p. 152.

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than the doctoral dissertation, which is supposed to include the identification of a problem, the design and application of a research method and the addition of new knowledge to the subject. This can be a time-consuming activity which requires faculty involvement on a one-to-one relationship with the student. Because doctoral recipients migrate on a national scale more than master's recipients who stay in-state, these differences between the two levels should be considered in reviewing the financial status of graduate education and research.

B. Use of Cost Data, Stipulation on Usage and Comparisons: The Necessity for More Adequate and Refined Cost Data

Because of the complex interrelated nature of all institutional components, college and university budget procedures do not itemize income and expense data according to function, such as undergraduate, graduate and research. Therefore, it is difficult to state directly the current financial status of graduate education and research. The National Commission on the Financing of Postsecondary Education analyzed financial data for all institutions included in the broad definition of "postsecondary," then summarized the data by institutional type. From this direction, the following can be *inferred* for graduate education:

—The estimated *total financing for postsecondary* education in 1971-72 came from the following sources:[39]

	Billions of dollars
Students (tuition/fees)	$ 5.9
State (local support)	9.3
Federal	8.1
Gifts and endowments	2.7
Auxiliary enterprises	3.5
Total investment	$29.5

—The *research and other Ph.D.-granting institutions* received the percentage of support from the following categories in 1971-72:[40]

	Public	*Private*
Governments	60.7%	35.7%
Students	11.6	19.1
Private sources	4.3	16.1
Auxiliary enterprises	23.4	29.1

[39] *Financing Postsecondary Education in the United States*, the report of the National Commission on the Financing of Postsecondary Education, December 1973, p. 69, Table 3-1.

[40] Ibid., p. 175, Table 4-18.

—The *comprehensive colleges (master's level)* percentages for 1971-72 were:[41]

	Public	*Private*
Governments	64.5%	8.5%
Students	14.9	54.2
Private sources	1.7	10.3
Auxiliary enterprises	18.9	27.0

—In 1971-72, the *leading research universities* showed significant decreases in percentage of average reported income from public sources, compared to other graduate level institutions:[42]

	Percentage Change		
Financing Source	*Leading Research Univ.*	*Small Ph.D. Insts.*	*Comprehensive Colleges (Master's Level)*
State Appropriation			
Public	−13.3%	4.5%	6.5%
Private	−35.5	10.4	38.1
Federal Aid			
Public	−42.7	56.0	19.9
Private	−19.2	32.3	29.5
Research Sponsored			
Public	−11.1	1.1	6.5
Private	−1.2	2.5	19.1
Major Public Service			
Public	−43.4	---	−22.8
Private	10.3	−72.8	3.8

Because the average doctoral education costs are estimated as substantially higher than those of undergraduate education,[43] funding agents expect adequate cost data to justify the level of funding. Graduate school administrators are concerned that cost data be interpreted and used in an appropriate manner. What are the stipulations on use of cost data? Will they be used to compare programs within the institution or between different types of institutions? On this issue, the National Board on Graduate Education stated its concern:

[41] Ibid.

[42] Ibid., p. 200, Table 5-5.

[43] National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, p. 58.

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> Our principal concern over the growing desire for cost figures on the part of state and federal legislatures is that current techniques for generating such numbers are not capable of accurately reflecting the complex relationships among graduate education, undergraduate education and research. Application of improper or premature techniques would produce nonsense numbers which, if acted upon by decision makers, could do great damage to the country's graduate education and research capabilities.[44]

On the other hand, governors and legislators have increasingly emphasized the need for cost data to justify institutional requests for state appropriations.

The need for more adequate and refined cost data is obvious. The challenge to all interested parties is to design a system for determining costs and benefits of graduate education and research that reflect the true, complex nature of the enterprise. The National Commission on the Financing of Postsecondary Education proposed a framework for analyzing national policies for financing postsecondary education and national standard procedures for institutional costing and data reporting. Glenn S. Dumke, chancellor, California State University and Colleges, listed the following stipulations which ought to be considered in any study of graduate financing:

> 1. A method of measuring instructional "output" or "activity" must be agreed upon. For this purpose, we use FTE (full-time equivalent student) defined in a very specific way. Other campuses or systems may use FTE defined in a different way or use some other measure altogether. To obtain comparable "cost of output" data, agreement upon the measure of output is necessary.
>
> 2. Faculty load—is there a differential between load requirements for graduate and undergraduate work? What workload credit is given for stage II graduate students (thesis and dissertation supervision)?
>
> 3. Academic standards—how rigorous is the program? What provisions exist for admission, retention, graduation?
>
> 4. What is the basis for planning and evaluating program utility and effectiveness? To what extent are past, present and expected future manpower needs of the region or nation taken into account? To what extent is student preference taken into account? What other factors are considered?
>
> 5. Within the National Center for Higher Education Management Systems Program Classification Structure, a method needs to be developed to enable consistent assignment of various activities to specific primary and support programs.
>
> 6. There is a need for comparable and reasonable methods for allocating support program costs (indirect costs) to primary programs (instruction, research and public service). Similarly, there is a need for comparable methods of allocating total instructional costs to the various types of graduate instruction.
>
> 7. Will expenditure of funds from all sources be included? If not, which funding sources are to be excluded?[45]

It is imperative for the future of the institutions that an adequate cost reporting system be established that provides clear, concise and comparable cost data to those in government responsible for allocating public funds in support of graduate education. While this system must guarantee the proper use of these data, it must provide an accurate statement of costs so that the true needs of the institution can be determined.

C. Public Policy Issues: Who Pays? On What Basis? Tuition Changes and Their Implications; Graduate Student Support

Recognizing the current financial investment in graduate education and research, and the need for improved analysis of costing-out this level, the critical issue remains one of determining the sources and amounts of financial support. Who pays how much for each graduate program? This is the fundamental issue that provoked several national studies and that continues to motivate organizations and governmental agencies interested in graduate education and research. Reports from several of these groups illustrate their current position on this public policy issue. The National Board on Graduate Education stated the following concerning the division of responsibility:

> . . . we believe that the division of responsibility toward higher education which has been evolving over the past 25 years is fundamentally sound; namely, that the states and the private sector assume responsibility for basic operation of the institutions and that the federal government assumes increasing responsibility for the financing of students, for research and for support of

[44] Ibid.

[45] Dumke, G. S., letter to Richard M. Millard, November 19, 1973.

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selected institutional programs in the national interest.[46]

In a statement to the National Commission on the Financing of Postsecondary Education, representatives of the three regional interstate compacts (the Western Interstate Commission for Higher Education, New England Board of Higher Education, the Southern Regional Education Board) and the Education Commission of the States agreed to the following position on the appropriate distribution for support of graduate education:

> Federal support for graduate education in the form of student aid, training grants, direct institutional support and research development are critically important for the welfare of the nation. However, we do not believe that it is in the best interest of graduate education, the institutions or the public for the federal government to assume primary responsibility for graduate education. To do so would tend:
>
> a. To distort federal, state and institutional perspective
> b. To encourage federal control of graduate education
> c. To overlook the integral relation of graduate education and undergraduate education in complex higher educational institutions
> d. To encourage crisis approaches to graduate education development based upon short-ranged manpower and projections and/or current but transient manpower needs
> e. To lead to overlooking the necessary lead time in effecting changes in program productivity.[47]

The Carnegie Commission on Higher Education considered graduate-level support as part of its step-tuition program. It advocated graduate-level tuitions three times as high for postbaccalaureate students as for freshmen and sophomores. It also recommended a significant increase in federal support "if the nation is to remain in the vanguard of scientific and technological developments."[48] To accomplish this, the Carnegie Commission recommended federal fellowships for doctoral students, together with cost-of-education supplements to institutions.[49] In another report, the Carnegie Commission recommended federal government support of university-based research programs be increased 15 per cent above the 1968 level by 1970, with the annual rate of increase declining from 15 per cent in 1970-71 to 10 per cent in 1976. This rate of increase [would] reflect expanding doctoral enrollments' use of more costly technology and the need for expansion into new fields of research.[50]

The National Board on Graduate Education emphasizes that ". . . benefits of graduate education are both private and social, accruing to the individual student and to the state, region and nation."[51] In discussing the pluralistic sources of support for graduate level education, the board endorsed the following principles for graduate student support, research and institutional support:

> —Graduate tuition should be maintained at levels below the "full cost" of graduate education.
> —Assuming no major increase in graduate tuition, federal fellowships and traineeships should not be increased to their 1968 highs. Neither should they be phased out.

The National Commission on the Financing of Postsecondary Education did not make specific recommendations for change in the financing of higher education. Rather, it developed an analytical framework to evaluate the effectiveness of alternative financing plans for postsecondary education to achieve national objectives for comparison with the level of financing needed by each plan. The commission called for further research in the application of this analytical framework.

The conclusions of these and other reports support the ECS task force recommendation endorsing continuation of a plurality of sources of support for graduate education—philanthropic, business and industrial, state and federal. Student tuition should be set at a level that will not foreclose opportunities for all interested and qualified individuals and should be supple-

[46] National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, pp. 11-12.

[47] Western Interstate Commission for Higher Education, New England Board of Higher Education, Southern Regional Education Board and the Education Commission of the States, *Statement to National Commission on Financing Postsecondary Education on Graduate Education*, July 1973. This statement did not represent official positions of the three regional compacts or the Education Commission of the States but the combined views of the persons meeting only.

[48] Carnegie Commission on Higher Education, *Who Pays? Who Benefits? Who Should Pay?*, June 1973, p. 107.

[49] Carnegie Commission on Higher Education, *Institutional Aid: Federal Support to Colleges and Universities*, February 1972, p. 83.

[50] Carnegie Commission on Higher Education, *Quality and Equality: New Levels of Federal Responsibility for Higher Education*, December 1968, p. 40.

[51] National Board on Graduate Education, *Federal Policy Alternatives Toward Graduate Education*, January 1974, p. 6.

mented by a variety of financial aid programs funded by the federal government. The states have the primary responsibility for basic institutional support that undergirds both the undergraduate and graduate programs, particularly in their public institutions.

D. Shared Resources: Regional and Interstate Cooperation and Interinstitutional Sharing, Public and Nonpublic

As the costs for education, including graduate education and research, continue to increase and interested individuals attempt to determine the source and amounts of financial support, it is important to consider the economics of sharing resources. This can take a variety of forms, such as faculty or student exchange between institutions, public and nonpublic, within each state or between several states; joint-institutional development of programs or services; designation of individual institutions to develop specific, high-cost programs for a region. These examples are planned or in operation in the three regional compacts and in an expanding number of interinstitutional consortia throughout the country based on a variety of objectives or purposes. Beyond the obvious economies from sharing scarce resources, these cooperative arrangements can enhance the quality of the experience for both faculty and students.

VI. THE ROLE OF THE STATES: INSTITUTIONAL-STATE-FEDERAL PARTNERSHIP

There is a great deal of interest and concern about the current status and future development of graduate education and research. This activity has been and is being conducted at the national, regional, state and institutional levels. Decisions are needed as to the appropriate roles and responsibilities at each level for the future planning and financing of graduate education and research. The charge to the ECS task force is to identify the role of the state in relation to the other sectors.

Concerning the planning responsibility, the task force emphasizes the state's central role in the federal-state-institutional partnership. The interrelationships of graduate and undergraduate education, research and public service, require that the planning for these institutional functions be conducted as a total process at the state and institutional interface. It is the state's responsibility to design and administer a statewide data system that provides appropriate information by which the state's executive and legislative branches can enact legislation accurately responding to the needs of the institutions in meeting their stated goals. While this information system must provide accurate data, policies also must be established to guard against the abuse of this data to the detriment of the institutions and the state.

In the planning process, the state should involve all public institutions and provide for the appropriate involvement of private institutions. Concerning the approval of new graduate programs, and the review of existing programs, the principal role of the state should be to insure that all programs are of the highest quality. Continued cooperation and collaboration between the federal government, the states and the institutions are essential to determine the appropriate distribution of programs to meet the national needs over a long-range projection. Finally, states must guarantee through legislation and institutional policy that all qualified citizens have equal opportunity for access to the graduate level, an opportunity that is not denied solely on the basis of ethnic, socioeconomic, sex or age discrimination.

In the important area of financing graduate education and research, the state's responsibility is to provide basic institutional support. There is general agreement that the federal government should provide financial support for graduate education through student assistance and cost-of-education grants to institutions and should support the research program through long-term contracts. But the states have the basic responsibility to support the institutions, without which excellent programs cannot survive.

States also should share in the support of their citizens through state scholarship, grant and loan programs for students. The question of the most appropriate percentage distribution of financial support for the graduate level is still being debated, and the states should take an active role with the federal government and the institutions in determining this critical issue. Finally, states should consider the economies that are being realized through sharing scarce resources by interstate and regional compacts.

Most states have been and are involved in these activities of planning and financing graduate education and research. The current status and future of this important aspect of postsecondary education calls for renewed emphasis and effort by the states to assure a viable, productive program that will continue to benefit our society.